

Notice of Allowability

Application No.

10/660,778

Applicant(s)

CELORIO-VILLASENOR,
ARMANDO

Examiner

Dinh Q. Nguyen

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3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response to election filed on 8/02/05.
2. ☒ The allowed claim(s) is/are 21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 21 has been amended for informal matters as follows:

21) (currently amended) the method of extinguishing a fire by the flames containment and suppression process herein described which comprises the steps of:

A) compressing a continuous mass gas mixture of dry air and superheated water vapor in a fire location;

B) receiving an external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous which is delivered to the fire location;

C) storing the external fire-fighting agent at the fire location;

D) supplying a continuous mass flow of the gas mixture of dry air and superheated water vapor to the flames site;

E) supplying a continuous mass flow of the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous to the flames site;

F) expanding in a jacketed or thermally insulated flow passage the continuous mass flow of the gas mixture of dry air and superheated water vapor, increasing the flow velocity, and thereby, generating a high flame-front penetration and blast capability, flames-suppression air jet, which is directed to the flames site disrupting said flames

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natural aerodynamics and blasting their origin, bringing about such flames blown off and combustion process extinction;

G) expanding in a horizontal or angled flow passage or passages the continuous mass flow of the gas mixture of dry air and superheated water vapor, increasing flow velocity, and thereby, generating a directional flame-containment air jet or jets, which are directed to the flames site, constraining run-away flames fronts from escaping, and preventing non burning surrounding materials inflammation;

H) expanding in a outer jacket or flow passage of the continuous mass flow of the gas mixture of dry air and superheated water vapor, increasing the flow velocity, and thereby, establishing a heat shield or thermal insulation air mass flow, in which the discharge air jet is directed to the flames site, preventing thereat, the heat transfer from the high temperature surrounding flames environment to the expanding continuous flow of ambient air in said jacketed flow passage and to the flames-suppression air jet;

I) expanding in the jacketed or thermally insulated flow passage, the continuous mass flow of the gas mixture of dry air and superheated water vapor, increasing the flow velocity, preventing the heat transfer from the high temperature surrounding flames environment, decreasing the flow temperature, and thereby, establishing a condensation shock wave, which produces water droplets from the superheated water vapor contents in said continuous compressed ambient air mass flow, generating thereat, a flames-suppression air jet with water droplets, which are directed to the flames site, wetting and cooling the inflammable materials, provoking further combustion inhibition;

J) feeding in the continuous mass flow of the gas mixture of dry air and superheated water vapor that expanding in the jacketed or thermally insulated flow passage, a continuous flow of the external liquid or foam fire-fighting agent, stored in a tank at the fire location and transported to the flames site by mean of a air pressurized tank discharge, and thereby, establishing its aspersion on the flames by means of said continuous mass flow of the gas mixture of dry air and superheated water vapor, generating thereat, a flames-suppression air jet with the external liquid or foam fire-fighting agent, which are directed to the flames site, extinguishing such flames;

K) feeding in the continuous mass flow of the gas mixture of dry air and superheated water vapor that expanding in the jacketed or thermally insulated flow passage, a continuous flow of an external powder or granular fire-fighting agent, stored at the fire location in a silo and transported to the flames site by means of a pneumatic conveyor discharge, and thereby, establishing its aspersion on the flames by means of said continuous mass flow of the gas mixture of dry air and superheated water vapor, generating thereat, a flames-suppression air jet with the external powder or granular fire-fighting agent, which are directed to the flames site, extinguishing such flames.

L) feeding in the continuous mass flow of the gas mixture of dry air and superheated water vapor expanding in the jacketed or thermally insulated flow passage, a continuous flow of an external gaseous fire-fighting agent, stored at the fire location in a tank and transported to the flames site by means of a dry air or gaseous agent pressurized tank discharge, and thereby, establishing its aspersion on the flames by means of said continuous mass flow of the gas mixture of dry air and superheated water

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vapor, generating thereat, a flames suppression air jet with the external gaseous fire-fighting agent, which are directed to the flames site, extinguishing such flames.

M) providing a compressor unit (2), a power drive (3a), a hook keeper (3b), a compressed air exhaust manifold (4), a compressed air hose (5a), a control manipulator pipe (6a), extension pipes (6b), a handle (7a), a handle (7b), suspenders (7c), a air throttle valve (8a), and, a rotary elbow (10a), to supply the continuous mass flow of the gas mixture of dry air and superheated water vapor to the flames site;

N) providing a external fire-fighting agent supply valve (3d), to receive the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous delivered to the fire location;

O) providing an external liquid or foam fire-fighting agent tank (32), to store at the fire location, and delivering the liquid or foam external fire-fighting agent;

P) providing an external powder or granular fire-fighting agent silo (34), to store at the fire location, and delivering the powder or granular external fire-fighting agent;

Q) providing an external gaseous fire-fighting agent tank (36), to store at the fire location, and delivering the gaseous external fire-fighting agent;

R) providing a tank pressurization air pressure line (3c), and a liquid or foam external fire-fighting agent manifold (33), to transport the continuous mass flow of an liquid or foam external fire-fighting agent (1c) from the fire location to the flames site;

S) providing a solid-fluidization air pressure line (3c), and a powder or granular external fire-fighting agent manifold (35), to transport the continuous mass flow of the

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powder or granular external fire-fighting agent (1d) from the fire location to the flames site;

T) providing a tank pressurization dry air pressure line (3c), a gaseous external fire-fighting agent manifold (37), a dehumidifier (38), and a by-pass valve (39), to transport the continuous mass flow of the gaseous external fire-fighting agent (1e) from the fire location to the flames site;

U) providing an external fire-fighting agent hose (5b), an external fire-fighting agent control valve (8b), and an external fire-fighting agent appended pipe line (6c), to supply the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous continuous mass flow to the flames site;

V) providing a distribution manifold (11a), to install the flow passages and pads of a "blast-gun" where into, the continuous mass flows of the gas mixture of dry air and superheated water vapor are distributed and expanded;

W) providing an outer convergent-divergent nozzle (12), supports or struts (28), and a jacketed convergent-divergent nozzle (22), to expand the continuous mass flow of the gas mixture of dry air and superheated water vapor generating the flames-suppression air jet with water droplets (14a), and the continuous mass flow of the gas mixture of dry air and superheated water vapor generating a thermal-insulation air flow and discharge air jet (25);

X) providing an outer straight duct (29), supports or struts (28), and the jacketed convergent-divergent nozzle (22), to expand the continuous mass flow of the gas mixture of dry air and superheated water vapor generating the flames-suppression air

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jet with water droplets (14a), and the continuous mass flow of the gas mixture of dry air and superheated water vapor generating the thermal-insulation air flow and discharge air jet (25);

Y) providing a injector pipe (6d), to feed the continuous mass flow of the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous in the continuous mass flow of expanding gas mixture of dry air and superheated water vapor, generating the flames-suppression air jet with the fire-fighting agent accomplishing its aspersion;

Z) providing two horizontal ducts or pipes (11b), two vertical ducts or pipes (11c), and two directional convergent nozzle: (13a), to expand the continuous mass flow of the a gas mixture of dry air and superheated water vapor, generating two flame-containment air jets (27a);

AA) providing four horizontal ducts or pipes (11b), four vertical ducts or pipes (11c), and four directional convergent nozzles (13a), to expand a continuous mass flow of the gas mixture of dry air and superheated water vapor, generating four flame-containment air jets (27a);

BB) providing an inner vertical cylinder (11d), an outer vertical cylinder (11e), two closing ends (11f), a radial duct and flange (11g), and a circumferential directional convergent nozzle (13b), to expand a continuous mass flow of the gas mixture of dry air and superheated water vapor, generating a radial discharge flame-containment air jet (27b);

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CC) providing a solid "skid" containment (30), to provoke the existence of air recirculation vertical flows (31), generating an enhanced forced vertical-flow flames blown off action;

DD) providing a pneumatic control (9), a support (16), a wheel (17a), a vertical rotation attachment (17b), a pneumatic cylinder (18a), and, a connection point (18b), to direct the flames-suppression air jet, water droplets, flame-containment air jets, the thermal-insulation discharge air jet, and the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous, to the flames site, performing efficiently the fire fighting work activities to extinguishing such flames; and

EE) providing a elbow accessory (10b), a pole support (19), a pivoted anchor (20), a double-action pivoted anchor (21a), a ratchet wheel pivot (21b), a release pedal (21c), a platform (21d), and, a vertical rotation attachment (21e), to direct, a flames-suppression air jet, water droplets, flame-containment air jets, a thermal-insulation discharge air jet, and the external fire-fighting agent of at least one of liquid, foam, powder, granular, or gaseous, to the flames site, performing efficiently the fire fighting work activities to extinguishing such flames.

2. The following is an examiner's statement of reasons for allowance: The prior art fails to disclose or render obvious the claimed combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to show the art with respect to a method of fire fighting: Poulsen, and Simpson.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinh Q. Nguyen whose telephone number is 571-272-4907. The examiner can normally be reached on Monday-Thursday 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Scherbel can be reached on 571-272-4919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dinh Q. Nguyen
Primary Examiner
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